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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/427,775	10/26/1999	JERRY D. KIDD	88742.472005	3747

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EXAMINER

PADGETT, MARIANNE L

ART UNIT PAPER NUMBER

1762

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/427,775

Applicant(s)

KIDD ET AL.

Examiner

Marianne L. Padgett

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/23/2005 & 1/25/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-17, 23-25, 27-50, 52-62, 66, 67, 70-82, 85-88, 90-109 and 111-151 is/are pending in the application.
- 4a) Of the above claim(s) 104, 106-109, 115, 116 and 134-150 is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-17, 23-25, 27-50, 52-62, 66, 67, 70-82, 85-88, 90-103, 105, 111-114 and 117-133 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/23/05 corrected</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1762

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/25/2006 has been entered.

2. A copy of the PTO 1449 of 11/23/2005 is enclosed, with correction initially in US patent references numbered 1-4.

In a 11/23/05 IDS Nimmagadda (4,540,596) was found to be particularly relevant for plasma depositions using metal target material, where initial pump down pressure \approx .01 mTorr, bias voltage to heat and clean = - 500 to -5000 V, which is reduced to -50 to -500 V with a reaction gas pressure \approx 1 mTorr.

3. Claims 1-5,7-17,23-25,27-50,52-62,66,67,70-82,85-88,90-103,105,111-114 and 117-133 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 151, the examiner stated that applicant's terms "inward" & "outward" appeared to correspond to positions in figure 2 that could be described "with respect to the center & edge of the turntable, respectively". The examiner NEVER suggested substituting one set of terms without context with another set of terms lacking context. The amendment to claim 151 introduces analogous problems to the words it replaces, hence remains lacking clarity as written, as it is of uncertain scope. Note that if the amendment had defined center of what & edge of what, it would have supplied clear context. If that 'what' was the platform of the turntable, it would have been supported.

In claims 1 & 129, where is this newly claimed range of -DC voltage of "below implantation level and above vapor deposition level" supported & defined in the 38 page specification? While $V=0$ is clearly vapor deposition, ion plating can be considered a vapor deposition process, so where the range of

Art Unit: 1762

voltages determined by "above vapor deposition level" would be is uncertain due to the lack of a clear , definition in the specification. Exactly what they produced deposition processes are being excluded? This amendment raises serious clarity issues that need to be resolved or clarified, with clear showing of how the original specification supports them. The claims has written potentially exclude all plasma deposition processes where bias is applied to substrate such that the claims are potentially so self-contradictory as to be nonfunctional, lacking a clarification of the scope encompassed by "above vapor deposition level"

4. Claims 1-5,7-17,23-25,27-50,52-62,66,67,70-82,85-88,90-103,105,111-114 and 117-133 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As discussed above in section 3, claim 151 appears to encompass options not enabled by the original disclosure due to its lack of context, since the claims do not defined with respect to what surfaces are center facing or edge facing, such that they could refer to virtually anything, thus encompassing New Matter as well as that supported by the citation. Would applicant's intent be provided by language such as in line 2 of claim 51 after "substrate" insert --on a platform--, then after "threaded surface" insert --within a vacuum chamber, where a surface of the substrate faces the platforms center and another surface faces the platform edge, wherein the platform further comprises-- to replace "a center facing... further comprises" in lines 2-4 (with appropriate consistent terminology in the succeeding limitations)?

In claims 1 & 129, as no definition was founded the original specification by the examiner which defines what these newly claimed voltage levels may encompass, especially for processing unlimited types of substrate materials, where deposition of any type of metal must be considered, hence this new range is not enabled such that it may be employed in the claimed process, so that it would also be considered to encompass New Matter. Also see above discussion in section 3.

Art Unit: 1762

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-5, 7, 8, 15-17, 24, 25, 27-28, 32-50, 52-57, 59-62, 67-68, 70-81, 85-88, 90-95, 98-103, 105, 111-114, 118-129 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over White (4,420,386 or 4,468,309), as applied in sections 4 of Paper No. 13 (mailed 5/22/02) and section 8 of Paper No. 21 (mailed 10/10/03), in view of Sakamoto et al (4,725,345) or Yaginuma et al (6,117,280) or Nimmagadda (4,540,596), as discussed in section 2 of the action mailed 10/12/04.

Definitive evaluation of the effects of the amended limitations for applying negative DC voltage in the claimed process, depends on a clear understanding of exactly what plasma deposition mechanisms are included and excluded from the process. Does requiring the negative voltage to be below implantation level exclude any mixing occurring at the interface between the "depositant", as well as implantation under or significantly into the surface of the substrate? Also there are many types of vapor deposition processes, such as those where no voltage is applied to substrate, through those with various amounts of substrate biasing which may cause acceleration of plasma ions to the substrate, up to and

Art Unit: 1762

including interface mixing in some ion implantation with the vapor deposition, hence it is unclear exactly what if any plasma deposition processing is left which may occur for the claims is written.

The primary references to White are directed to a vapor deposition process that biases the substrate, such that they may or may not be excluded by applicants' language depending on what the unclear language includes or excludes by its description of the negative voltage applied to the substrate. As the White references apply voltage to the substrate so as to attract positive ions towards the substrate, if the intent of the amended language is not to exclude ion plating processes, then the White references remain appropriate for application to these claims, and the prior art preference combinations would appear to remain appropriate. However, if applicants are excluding ion plating, the examiner is unclear as to what he is included such that the claims would appear to be nonfunctional.

7. Claims 29-31 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over White (386 or 309), in view of Sakamoto et al or Yaginuma et al or Nimmagadda as applied to claims 1-5, 7, 8, 15-17, 24-25, 27-28, 32-50, 52-57, 59-62, 67-68, 70-81, 85-88, 90-95, 98-103, 105, 111-114, 118-129 and 132 above, and further in view of Grossman et al (5,078,847), as discussed in Section 5 of Paper No. 13 (mailed 5/22/02) and Section 9 of Paper No. 21 (mailed 11/10/03).

8. Claims 8-14 and 117 are rejected under 35 U.S.C. 103(a) as being unpatentable over White (386 or 309), in view of Sakamoto et al or Yaginuma et al or Nimmagadda as applied to claims 1-5, 7, 8, 15-17, 24-25, 27-28, 32-50, 52-57, 59-62, 67-68, 70-81, 85-88, 90-95, 98-103, 105, 111-114, 118-129 and 132 above, and further in view of White (4,667,620) as applied in Section 6 of Paper No. 13 (5/22/02).

9. Claims 96, 97 and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over of White (386 or 309), in view of Sakamoto et al or Yaginuma et al or Nimmagadda as applied to claims 1-5, 7, 8, 15-17, 24-25, 27-28, 32-50, 52-57, 59-62, 67-68, 70-81, 85-88, 90-95, 98-103, 105, 111-114, 118-129 and 132 above, and further in view of Mattox (3,329,601) as applied in Section 8 of Paper No. 13.

Art Unit: 1762

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over White (309), in view of in view of Sakamoto et al as applied to claims 1-5, 7, 8, 15-17, 24-25, 27-28, 32-50, 52-57, 59-62, 67-68, 70-81, 85-88, 90-95, 98-103, 105, 111-114, 118-129 and 132 above, and further in view of Section 10 of Paper No. 13 and as discussed above.

11. Applicant's arguments filed 11/23/2005 (entered with our CEO of 1/25/2006) and discussed above have been fully considered but they are not persuasive. With respect to all pending elected claims, except new claim 151, no new arguments were made, and the previous arguments were answered in the previous action as indicated above.

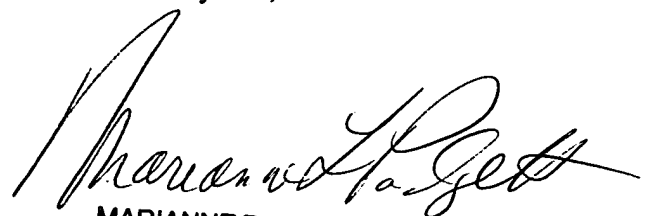
If the examiner's interpretation of probable intent is correct, as provided by the above suggested amendments, Claim 151 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 1st & 2nd paragraph, set forth in this Office action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software 3/20/2006



MARIANNE PADGETT
PRIMARY EXAMINER